

CLAIMS

1. An electromagnetically driven valve (10) which includes a drive valve (14) that is provided with a valve stem (12) and that reciprocates in a direction in which the valve stem (12) extends, and which operates by using both an electromagnetic force and an elastic force, characterized by further comprising:

a first oscillating member (21) and a second oscillating member (31) each of which can oscillate by using a predetermined point in a base member (51) as a supporting point, each of which is movably connected to the valve stem (12) at a first end (22, 32) and is movably supported by the base member (51) at a second end (23, 33), and which are provided at a predetermined distance from each other;

an electromagnet (60) which includes a coil (62), and which is provided between the first oscillating member (21) and the second oscillating member (31); and

a detection portion (501) which detects a position of at least one of the drive valve (14), the first oscillating member (21), and the second oscillating member (31), wherein

the electromagnetic force is applied to the first oscillating member (21) and the second oscillating member (31) when an electric current passes through the coil (62), and

an amount of electric current that passes through the coil (62) is determined based on the position detected by the detection portion (501).

2. The electromagnetically driven valve according to claim 1, characterized in that

a cross sectional area of a portion in the drive valve (14) continuously changes in the direction in which the valve stem (12) extends, and the detection portion (501) detects the position of the drive valve (14) based on a position in the portion whose cross sectional area continuously changes.

3. The electromagnetically driven valve according to claim 2, characterized in that

a cross section of the portion in the drive valve (14), whose cross sectional area continuously changes, is rectangular, and the cross sectional area changes linearly in an axial direction of the valve stem (12).

4. The electromagnetically driven valve according to claim 2, characterized in that

a cross section of the portion in the drive valve (14), whose cross sectional area continuously changes, is circular, and the cross sectional area changes linearly in an axial

direction of the valve stem (12).

5. The electromagnetically driven valve according to claim 1, characterized in that the detection portion (501) detects a deviation of the drive valve (14) from a reference axis.
6. The electromagnetically driven valve according to claim 5, characterized in that paired detection portions (501) are provided with the valve stem (12) interposed between the paired detection portions (501) in a direction perpendicular to an axial direction of the valve stem (12).
7. The electromagnetically driven valve according to claim 1, characterized in that the detection portion (501) is provided at an upper end portion of the drive valve (14).
8. The electromagnetically driven valve according to claim 1, characterized in that the detection portion (501) is provided in the base member (51) so as to face at least one of the first oscillating member (21) and the second oscillating member (31).
9. The electromagnetically driven valve according to claim 1, characterized in that, if a direction in which the electric current passes through the coil (62) is reversed in a state where one of the first oscillating member (21) and the second oscillating member (31) has been attracted to the electromagnet (60), the electromagnetic force is applied to the one of the first oscillating member (21) and the second oscillating member (31), which has been attracted to the electromagnet (60), in a direction in which the one of the first oscillating member (21) and the second oscillating member (31) moves away from the electromagnet (60).